Estimating the impact of The New system of Rice Intensification (SRI) on farmers' Net Income among the rain dependent rice farmers

Remidius D.Ruhinduka

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UNIVERSITY OF RWANDA

CEGA University of California Center for Effective Global Action

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Background/Motivation

- SRI involves a set of principles to be jointly applied during rice farming. Major components include grid spacing, transplanting, manual/mechanical weeding and intermittent irrigation.
- Originally designed for irrigated systems and doubted whether could work in the rainfed systems
- Now (with slight modifications) gradually introduced into such systems and very little is known about its impact.

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….Background/Motivation

- Previous studies on Yield Impact: Positive and significant
- Regardless: Less adoption rates and disadoption
- Potential Reason: SRI is labor intensive and farmers have to re-allocate most of their non-farm labor to SRI plots
- What we Do: Assess the Impact of SRI on Net Crop Income (accounting for increased labor costs)

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Intervention

- SRI was introduced in Tanzania for the first time in year 2009 under a program financed by USAID (feed the future project).
- Participation was Non-Random(both self selection and program placement effects are evident)
- In the first year, farmers are trained of the technology on demonstration plots and decide whether to continue with it in the subsequent cropping season
- Majority of adopters still practice the traditional rice farming methods

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Research Design

- We employ an non-parametric methods to estimate the plot level treatment effects (the Propensity score Matching)
- We take advantage of the partial adoption status by the adopters to control for both observables and unobservable farmers fixed effects
- Since we are dealing with the same farmers across their different plots, we do not worry of farmers' fixed effects.
- We however still have to worry about plot-level selection bias .
- We collect a number of subjective information on plot characteristics (slope, soil type, soil quality) to minimize the problem.

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Main Results

- **Yield effects**: Positive and significantly high (SRI doubles the yields)
- Consistent with previous literature
- **Profit effects**: Statistically not different from zero
- Kazushi and Barret (2013) find similar opposing effects in Indonesia

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Challenges and Lessons

- Positive effects on Yield suggest that SRI could actually work even in the rain-fed systems
- Zero profit effect explain for less adoption rate and probably the disadoption of SRI observed in previous literature
- Policy Challenge: Should we still promote SRI and How? (tradeoff btn Food security and crop profitability to the farmer)

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Policy Relevance/Next Steps

- Promotion of SRI should depends on the policy goal
- Overall Food security: Yes but probably find a way to compensate the adopting farmers for the opportunity cost of the excessive man-days (subsidy??)
- Farmers overall wellbeing: Questionable given the overall profit effects.

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